A NEW SPECIES OF *COMPSORHIPIS* SAUSSURE (ORTHOPTERA, ACRIDIDAE, OEDIPODINAE), WITH A KEY TO THE KNOWN SPECIES FROM CHINA AND ADJACENT AREAS[1]

Xiang-Chu Yin[2,3] and Wen-Qiang Wang[2,4]

ABSTRACT: A new species *Compsorhipis longicornis* of the genus *Compsorhipis* Saussure (Orthoptera, Acrididae Oedipodinae) is described from China. A key to known species of the genus is given.

KEY WORDS: Orthoptera, Acrididae, Oedipodinae, new species, China

The genus *Compsorhipis* Saussure was erected in 1889 (type species *Callirhipis davidiana* Saussure, 1888). The main characters differentiating *Compsorhipis* from closely allied genera, such as *Bryodema* Fieber and *Bryodemella* Yin are the presence of a very wide dark band on the hind wing, main longitudinal veins of hind wing normal and not obviously thickened, hind tibia with many (about 15-17) spines on its inner side, and dense pubescence on the ventral portion of the body and on the legs. Up to now, six species of *Compsorhipis* have been reported worldwide (Saussure, 1888; Bei-Bienko, 1932; Bei-Bienko and Mishchenko, 1963; Chogsomzhav, 1989; Li, et al., 1990; Zheng, 1993; Huo and Zheng, 1993; Zheng and Ma, 1995; Zheng and Xia, 1998; Yin, et al., 1996; Zheng and Gong, 2003), distributed in the southern Transbaikal region of Russia, Mongolia, and northern China. Except for *C. orientalis* Chogsomzhav, 1989, which is distributed only in Mongolia, the remaining five species of *Compsorhipis* are found in China (Fig. 1).

While identifying grasshoppers collected in the Xinjiang Uigur Autonomous Region of China during 2003, a new species of the genus *Compsorhipis* (Oedipodinae) was found and it is herein described. The type specimens are deposited in the Museum of Hebei University (MHU).

[1] Received on October 19, 2004. Accepted on December 3, 2004.

[2] College of Life Sciences, Hebei University, Baoding 071002 China. E-mails: (XCY) yxch@mail.hbu.edu.cn, (WQW) wwqya@yahoo.com.cn.

[3] College of Plant Protection, Shandong Agricultural University, Taian 271018, China. E-mail (XCY) yxch@sdau.edu.cn.

[4] College of Life Sciences, Yan'an University, Yan'an 716000 China. E-mail (WQW) wwqya@yahoo.com.cn.

Mailed on March 31, 2005

Fig. 1. Distribution of species in the genus *Compsorhipis* Saussure. ■*C. angustilinearis* Huo and Zheng, ●*C. bryodemoides* Bei-Bienko, ◆*C. cyanitibia* Zheng et Gong, ▲*C. davidiana* (Saussure), ★*C. longicornis* new species, ⊙*C. nigritibia* Zheng, ▼*C. orientalis* Chogsomzhav.

Compsorhipis longicornis, NEW SPECIES

(Figs. 2A-B)

Diagnosis. This new species is similar to *Compsorhipis cyanitibia* Zheng and Gong, 2003. The major differences distinguishing these two species are listed on Table 1.

Type Data. Holotype: male, paratypes: 4 males, 2 females, Yiwu, Xinjiang Uigur Autonomous Region, China (43°12'N, 94°36'E), 1700-2000m, 14 Aug. 2003, collected by Wen-qiang Wang and Xin-jiang Li.

Etymology. The species name is derived from Latin *longi-* (long) and *cornis* (antenna) meaning this new species with longer antennae.

Table 1 Comparison of characters of two species of the genus *Compsorhipis*.

Compsorhipis cyanitibia Zheng and Gong	*Compsorhipis longicornis*, new species
Length of a middle segment of antennae 1.5-2.0 times its width (male)	Length of a middle segment of antennae 2.4-2.6 times its width (male)
Maximum width of cubital area 1.5 (male) or 2.0 (female) times the width of medial area	Maximum width of cubital area 2.2 (male) or 1.4 (female) times the width of medial area
Basal part of hind wings dark red	Basal part of hind wings purplish red
Width of elytra about equal to maximum width of transparent band of hind wings (female)	Width of elytra 1.4 times larger than maximum width of transparent band of hind wings (female)
Length of hind femur 5.3 times its width (male)	Length of hind femur 4.2-4.5 times its width (male)
Hind tibiae totally dark blue	Hind tibiae blue in terminal part, rest yellowish brown

Description. Male. (Fig. 2-A) Body slender, medium sized, ventrally and legs with dense thin and long hairs. Head short. Frons almost vertical, form obtuse angle with vertex; frontal ridge broad, with longitudinal sulcus obviously, lateral margins slightly narrow below median ocellus, visibly not reaching to clypeus downward. Vertex short and broad, rather flat, its lateral margins distinct. Lateral foveola absent. Antennae filiform, thin and long, the length 1.5 times head and pronotum together, length of a middle segment 2.4-2.6 times its width (Fig. 2-A-1). Eyes oval, longitudinal diameter 1.2 times its horizontal diameter, and 1.1 times subocular sulcus. Interocular distance 1.6-1.7 times width of frontal ridge between antennae. Pronotum contracted in prozona, cylindrical; metazona widened, flat, shoulder shaped outer sides; anterior margin faintly obtuse angular, posterior margin angular projected in the middle; median keel of pronotum thin, absent between transversal sulci; length of metazona 1.8-1.9 times that of prozona; lateral keels absent. Lateral lobe of pronotum rectangular, lateral margins parallel, anterior ventral part right-angular and posterior ventral part rounded. Prosternum appreciably swelled. Width of mesosternal lobes larger than the length, interspace wide, its width larger than that of lobes. Metasternal lobes separated widely. Elytra developed, extending to end of hind tibiae, apices round, length 3.8-4.0 times width; Intercalary vein in medial area slightly curved, relatively closer to median vein rather than to anterior cubital vein; Maximum width of cubital area 2.2 times the width of medial area (Fig. 2-A-3). Hind wings slightly shorter than elytra, main longitudinal veins of hindwings slightly thickened; middle part with a broad and black fascia, its width 1.6-2 times width of elytra. Width of second anal lobe 1.5-1.8 times width of third anal lobe, $2A_1$ vein thicker, $2A_2$ vein thinner and paralleled with $2A_1$ vein. Length of hind femur 4.2-4.5 times its width, median keel of upper side smooth (Fig. 2-A-2). Apex of lower kneelobes angled. Outer side of hind tibia with 12-13 spines, inner side with 14-15 spines, outer apical spine absent. Arolium between claws small, not reach to the half of claws. Tympanum organ developed, aperture approximately rounded; Tympanic flap small, covered less than 1/3 of tympanal aperture. Anal plate triangular, with transversal ridge in the middle. Cerci long cone-shaped, extending to the apex of epiproct. Subgenital plate brevi-conic, apex blunt.

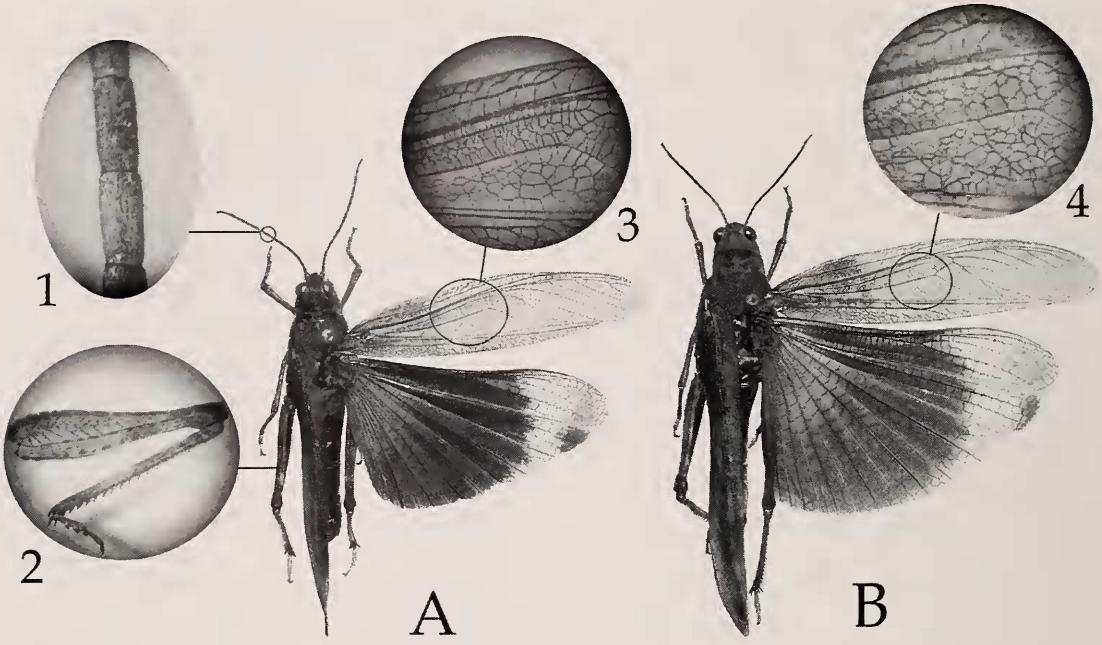

Fig. 2. Photographs of *Compsorhipis longicornis,* new species. A. Dorsal view of male. B. Dorsal view of female. 1. Partial enlarged image of the antenna; 2. Lateral view of the hind leg; 3. Partial enlarged image of the elytron; 4. Partial enlarged image of the elytron.

Female (Fig. 2-B). Body more sturdy than male. Length of a middle segment of antennae 2.3 times width. Length of elytra 4.2 times width, maximum width of cubital area 1.4 times width of medial area (Fig. 2-B-4). Width of second anal lobe of hind wings 1.6 times width of third anal lobe; Width of black fascia of hind wings larger than 2 times of width of elytra. Length of hind femur 3.8 times its width. Ovipositor short and thick, without blunt teeth. Length of subgenital plate larger than width, posterior margin slightly projected in the middle. Others same as male.

Coloration. Body fuscous. Antennae yellow and brown alternated. Basal quarter of elytra dark brown, rest part semitransparent and scatter with some dark speckles mainly in anterior and posterior margins. Hind wings purplish red in basal part, transversal vein within it black; near apical part with a wide transparent band, extending backward to the fourth anal lobe; apical part with two black speckles; Width of elytra 1.4 times larger than the maximum width of transparent band of hind wings (Fig.2). Hind femur with two indistinctly darker fascia in outer side and with a yellow ring near knees, inner and lower sides black; knees black. Hind tibiae blue in terminal part, the others yellowish brown (Fig. 2-A-2). Tarsi yellow.

Measurements. (mm). length of body: male 29.6-30.0, female 36.0-48.0; length of pronotum: male 6.1-6.3, female 7.3-8.4; length of elytra: male 30.0-31.3, female 35.5-39.8; length of hind femur: male 12.3-13.1, female 15.2-16.7.

KEY TO KNOWN SPECIES OF *COMPSORHIPIS* SAUSSURE

1. Tegmina with regular cross veins in costal area, especially in male 2
- Tegmina with irregular cross veins in costal area, even in male 3
2. Antennae relatively thick and short, length of a middle segment 3 times (not over 3 times) its width. Hind tibia red ....*Compsorhipis orientalis* Chogsomzhav, 1989
- Antennae relatively thin and long, length of a middle segment 4-5 times its width. Hind tibia pale yellow or slightly luteous..... .....*Compsorhipis bryodemoides* Bei-Bienko, 1932
3. Male's hind tibia black, with a white ring near the basal part. In female, the basal and middle part of hind tibia black, apical and near the basal part white .....*Compsorhipis nigritibia* Zheng et Ma, 1995
- Male's hind tibia not black, without a white ring near the basal part 4
4. Hind tibia orange red, with a dark speckle in the middle part 5
- Hind tibia wholly blue or blue in terminal part, without a dark speckle in the middle part.....6
5. Transparent band of hind wing wider, the width slightly narrower than that of elytron. Basal part of hind wing rose red in larger scope, width of second anal lobe of hind wing not longer than that of 1.5 times of third anal lobe. Hind tibia orange red .....*Compsorhipis davidiana* (Saussure, 1888)
- Transparent band of hind wing narrower, width of elytron larger than that of transparent band of hind wing about 2.6-3.25 times (male) or 2.25 times (female). Besal part of hind wing dark red in smaller scope, width of the second anal lobe of hind wing 1.5 times larger than that of the third anal lobe. Hind tibia yellowish with slightly red ....*Compsorhipis angustilinearis* Huo et Zheng, 1993
6. Antennae shorter, length of a middle segment is smaller than 2 times of its width. Width of elytron about equal to the maximum width of transparent band of hind wing in female. Maximum width of cubital area 1.5 (male) or 2.0 (female) times the width of medial area. Basal part of hind wing dark red. Length of hind femur 5.3 times its width in male. Hind tibia wholly dark blue .....*Compsorhipis cyanitibia* Zheng et Gong, 2003
- Antennae longer, length of a middle segment larger than 2.4 times of its width. Width of elytron larger than 1.4 times of the maximum width of transparent band in hind wing of female. Maximum width of cubital area 2.2 (male) or 1.4 (female) times the width of medial area. Basal part of hind wing purplish red. Length of hind femur 4.2-4.5 times its width in male. Hind tibia blue in terminal part, others yellowish brown..... .....*Compsorhipis longicornis,* new species

ACKNOWLEDGEMENTS

We are very grateful to Xin-jiang Li (College of Life Sciences, Hebei University, China) for assisting in collecting specimens. This study funded by the National Natural Sciences Foundation of China (No. 30130040).

LITERATURE CITED

Bei-Bienko, G. Y. 1932. Notes on the genus *Compsorhipis* Sauss. (Orthoptera: Acrididae). Stylops: A Journal of Taxonomic Entomology 1: 82-84.

Bei-Bienko, G. Y. and L. L. Mishchenko. 1963. pp. 252-253 *In,* Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries [In English, Translated from Russian]. Part II. Israel Program for Scientific Translations. Jerusalem, Israel. 291 pp.

Chogsomzhav, H. 1989. Composition and distribution of fauna of the Orthopteroidea in the Mongolian People's Republic (in Russian). Nasekomye Mongolii 10: 84-96.

Huo, K, K. and Z. M. Zheng. 1993. Two new species of grasshoppers from Nei Mongol Autonomous Region (Orthoptera: Oedipodidae). Acta Zootaxonomica Sinica 18(2): 188-192.

Li, H. C., Y. Ma, Z. R. Zhang, X. W. Pan, and A. S. Ma. 1990. Studies on the composition of Acridoidea fauna and its regional distribution in Nei Mongol (Inner Mongolia) Autonomous Region. Entomotaxonomia 12(3-4): 171-193.

Saussure, H. D. 1888. Addimenta ad Prodromum Oedipodiorum, Insectorum ex Ordine Orthopterorum. Memoires de la Societe de Physique et d'Histoire naturelle de Geneve 30(1): 22, 66.

Saussure, H. D. 1889. Note sur quelques Oedipodiens, en Particulier sur les genres appartenant au type des *Sphingonotus.* Mitteilungen der Schweizerischen entomologischen Gesellschaft 8: 87-97.

Yin X. C., J. P. Shi, and Z. Yin. 1996. A synonymic catalogue of grasshoppers and their allies of the world (Orthoptera: Caelifera). China Forestry Publishing House. Beijing, China. 186 pp.

Zheng, Z. M. 1993. pp. 191, 227-228. *In,* Acritaxonomy. Shaanxi Normal University Press, Xi'an. 442 pp.

Zheng, Z. M. and Y. X. Gong. 2003. Three new species of Oedipodidae from Xinjiang (Orthoptera, Acridoidea). Acta Zootaxonomica Sinica 28(2): 258-262.

Zheng, Z. M. and S. L. Ma. 1995. New species of grasshoppers from Gansu Province (Orthoptera, Acridoidea). Acta Entomologica Sinica 38(1): 67-71.

Zheng, Z. M. and K. L. Xia. 1998. pp. 81, 162-166, 557, 561. *In,* Fauna Sinica, Insecta. Volume 10. Orthoptera, Acridoidea: Oedipodidae and Arcypteridae. Science Press. Beijing, China. 616 pp.